DOCUMENT RESUME

ED 079 374 TM 002 973

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TITLE A Mastery Approach for Large Classes in Introductory Educational Psychology.
PUB DATE 73
NOTE 9p.; Paper presented at Annual Meeting of American Educational Research Association (New Orleans, Louisiana, February 25-March 1, 1973)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Educational Psychology; *Grading; Higher Education; *Learning Theories; Multiple Choice Tests; *Performance Criteria; Speeches; Student Evaluation; *Teaching Methods; Testing

ABSTRACT

A learning-for-mastery approach, recommended by Bloom and based on key points suggested by Biehler, was used in large lecture sections of undergraduate educational psychology. Quizzes were composed of completion items; one or more alternate forms could be taken until mastery was achieved or grades raised. Students also did short papers on readings or projects chosen by them, in order to add a less convergent dimension of learning and as an additional way of raising grades. Minimum mastery level was a C average on each quiz and two papers. Student evaluation of the approach has been enthusiastically positive. (Author)

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A MASTERY APPROACH for LARGE CLASSES in INTRODUCTORY EDUCATIONAL PSYCHOLOGY

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A paper presented at the American Educational Research Association Annual Meeting, New Orleans, Louisiana, 1973, as part of a symposium entitled "New Directions in Teaching Educational Psychology".

Introduction

At Winthrop College, undergraduate educational psychology is taught in large lecture sections ranging from one hundred and twenty-five to one hundred and fifty students each. Among sources of dissatisfaction with such an arrangement is, first, the frustration any teacher feels in dealing with large numbers: the teacher can be entertaining, especially if there is a little thespian blood in the veins; and some students can learn (especially facts, as much of our research tells us). But can the teacher teach? Although it is possible to learn a few names, chiefly from the front rows where the potential participators typically sit, there is very little opportunity to find and to deal with individual deficiencies in understanding. This teaching failure is painfully crystallized in the evaluation process when the anonymous grades are curved by an instructor who is slightly oppressed by a mild sense of guilt at having failed to teach adequately, who is carefully repressing the thought of how little material will be retained, and who finds comfort only in the fact that at least he does not know the students whom he is rather arbitrarily categorizing.

A second source of dissatisfaction arises from the nature of introductory educational psychology. The course typically appears to be intended to serve two functions: that of a survey course, and as a source of principles and content which can be of practical usefulness when the college students go into their own classrooms. These functions are to some degree contradictory. The former appeals to instructors recently out of graduate school, and, since psychology is an interesting field, they can entertain students with it. My students, however, prefer the latter.

At least two ways of minimizing these difficulties had attracted me--first, to reduce the number of concepts covered in the course, and, second, to devise at least two alternate forms for multiple choice quizzes which would emphasize understanding and application. I confess that I was making very little progress toward implementing those approaches until I read an article by Robert Biehler in the May, 1970, issue of The Educational Psychologist. Here, Biehler raised many of the same issues which had troubled me. We adopted his textbook when it was issued, and in the course of things Dr. Biehler asked me to furnish completion test items and later some of the multiple choice items for the book. Two things had happened to move me toward implementing the approaches I have mentioned--in his book Dr. Biehler had reduced the number of concepts to be covered, and I was, perforce, working on test items.

THE MASTERY APPROACH

In Fall Semester, 1971, we began a mastery approach based on a philosophy expressed by Benjamin Bloom:

> Each teacher begins a new term or course with the expectation that about a third of his students will adequately learn what he has to teach. He expects a third to fail or to just "get by". Finally, he expects another third to learn a good deal of what he has to teach, but not enough to be regarded as "good students". This set of expectations, supported by school policies and practices in grading, is transmitted to the students through the grading procedures and through the methods and materials of instruction....This...is the most wasteful and destructive aspect of the present education system. It reduces the aspirations of both teachers and students, it reduces motivation for learning in students, and it systematically destroys the ego and self-concept of a sizable group of the students.... Most students (perhaps more than 90 percent) can master what we have to teach them, and it is the task of instruction to find the means which will enable them to master the subject under consideration. A basic task is to determine what we mean by "mastery of the subject....."[1]

The determination of what constitutes mastery in introductory educational psychology was made at Winthrop on the basis of key points listed by Riehler, supplemented by a chosen few from lectures. The standard of mastery is set arbitrarily at the C level, such mastery to be obtained on each quiz. At first a C was set at 65%, a B at 75% and an A at 85%. Final grades are averages of quiz grades. In addition, primarily to add a less convergent dimension to the learning experience, short papers on readings or projects, emphasizing personal reactions rather than reporting, are required: two for a C, three for a B, four for an A. The mastery approach is entirely voluntary. Those who wish, however, can take alternate forms in order to raise grades. Students are encouraged to take alternate forms only when they feel ready to do so. Any student who makes at least a C on each quiz has the additional option of raising the grade by doing extra papers: five papers convert a C to a B and six convert a B to an A.[2]

One of the most heart-warming experiences to come from this approach has been the transformation of that bottom one-third of students whose work, as Bloom says with bitter truth, is typically labeled "inadequate." These students begin study in the dismal expectation of failure; they are relatively handicapped in their capacity to learn; and they are additionally frozen

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[1] Benjamin S. Bloom et al., Handbook on Formative and Summative Evaluation of Student Learning. New York: McGraw-Hill, 1971, p. 43.

[2] A more detailed description of the course is attached as an appendix.

with anxiety. It is necessary to have counseling sessions with the most anxious of these students. They do poorly on the first quiz, and they do not believe they can do otherwise. It is necessary for the instructor to convince them that he has faith in them, and it is sometimes necessary to help them with study habits (which include some tutoring in test-taking skills as these relate to the particular type of quiz). It is relatively useless at first to attempt to tutor on content; learning is too badly blocked by poor self concepts as learners. The most effective factor, of course, is the experience of success, which, with luck, comes on the second or third alternate form. Once they find they can succeed, they take initially poor performance on later quizzes in much better spirits, having come to believe in their ability to improve; initial performance also improves. The need for counseling disappears too. Listen to this student commenting on the mastery approach: "I love it! After making D- on the first quiz I really felt dumb. But, then, by pulling an A on the alternate--well, perhaps my IQ isn't 85!"

There were two especially pleasant surprises. First was the quality of the papers. It was so high that the mastery level for test grades was lowered five percentage points in order to give more weight to the contribution of the papers. Second was the motivating effect of self competition; with some students we have almost had a sporting even.

Student Reactions

Student reactions to the mastery approach have been overwhelmingly favorable--and some will make a cynical instructor feel a bit humble. The major reason given was the reduction of tension; also prominent was greater learning. Students say: "When you are having a really bad day, it is nice to know that you aren't ruined"; "Our tests didn't just end with a grade--we had a chance to learn the material even after that"; "I was sitting in a room taking a test one evening, and I'd never felt so relaxed taking a test in my life. I really felt confident because I knew I didn't have to take it till I was sure I knew it"; "I know you would say of course you like it because you can raise your grade and that's true, but I can honestly say that I feel I've learned and retained much more of the material"; "Test tensions were really reduced if you knew that it was the mastery of the course that counted and not the grade"; "I learned more; I didn't cram as much"; "It was good for the ego"; "What good is a course if you don't learn its material"; "It was great knowing somebody cared about our really learning something".

Four students in the last two semesters (about two percent) disliked the mastery approach. In all cases the objection was to falling behind in the course because of the inability to discipline themselves to study for the first quiz when the option of alternates was available.

Not only did all students like the opportunity to do extra papers in order to raise grades, but they enjoyed the reading and projects, especially the freedom to make their own choices and to express their own opinions.

Frequent comments were that the papers let them go into depth on something they found interesting, that their understanding of the textbook material was improved, that they read many books they had always wanted to read. Only one student in the last two semesters' classes disliked this aspect of the course.

Practical Aspects of Implementation

1. Changes in teaching style. The mastery option for students carries an obligation for the instructor to devote more time to teaching students, as compared with being merely interesting in lecture. It means more care and time given to going over quizzes with students, more conferences with students, more time spent in lectures on elaborating key points and the consequent reduction or abandonment of some favorite additional points. It means supplying additional teaching aids such as programmed materials. The increased time which the instructor gives to helping students learn introduces a warm and rewarding intervening variable also--a more personal and open relationship with students, which, in turn, takes more time.

2. Grading policies. If the institution has guidelines on grades, mastery learning will certainly violate them.

3. Mechanics of alternate-form quiz administration. If alternate-form quizzes are held at set times, much of the strength of the mastery approach is lost. A test should be given only in order to measure learning; therefore, it should be given only after there has been an opportunity for mastery. Students should, therefore, take alternate-form quizzes only when they feel they are ready to do so; the time of administration must therefore be flexible.

4. The nature of objectives. As Bloom says, "A basic task is to determine what we mean by 'mastery of the subject.'" When objectives are set by the instructor and mastery of them is determined by objective tests, there are severe restrictions on individuality. In smaller classes, there are compensating options available. There must also be some such option in large classes. In the approach described here, the option is short papers, and it has been a successful one. The degree to which any particular instructor weighs the mastery of convergent-thinking objectives in comparison with the options for individuality is part of the determination of what constitutes mastery.

Conclusion

The basic principle of mastery learning is that students should be evaluated in terms of their mastery of the course subject matter, no matter when that mastery is achieved. There are practical limits to the time which can be allowed in the college schedule, but surely it is self-evident that a student's grade at the end of the course should reflect what he knows at the end of the course. Last spring I had no graduate assistant. With over one hundred students, I was grading first and alternate forms of completion-item quizzes and evaluating five to six papers per student. I decided I did not have time to continue the mastery approach, but after I read the student evaluations I knew I had to. It is not I who recommends mastery learning to you; it is my students.

APPENDIX

EDUCATION 381: EDUCATIONAL PSYCHOLOGY
Spring, 1973

Instructor: Mary T. Littlejohn

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General Procedures

The method of evaluation to be used in this course is based on a learning-for-mastery scheme devised by Benjamin S. Bloom (described in pages 406-407 of the text*). Bloom has proposed that an instructor present an organized set of ideas to be mastered, devise methods and materials to encourage mastery of these ideas, and then determine if mastery has been achieved. If a first attempt is not successful, the instructor offers assistance to help the student overcome his deficiencies. Any student who eventually meets the established standards earns a grade reflecting this fact.

In order to reduce the usual test tensions, (1) you are notified in advance (on the attached schedule) as to what material will be covered on quizzes and when quizzes will be held, and (2) alternate forms of any quiz may be taken on request if you wish to try to improve your performance.

Your performance on quizzes will reflect primarily convergent learning--the "right" answer approach. In order to add another dimension of learning to the course, you will also be given the opportunity to write short reports on topics of your own choosing. Papers may be based on the "Suggestions for Further Reading, Thinking, and Discussion" noted in the Study Guide or on other topics of your choice (subject to prior approval by the instructor). Papers should be primarily a reflection of your own opinions and reactions rather than an outline of what someone else has said--unless you record the ideas of others in such a way that the notes will be valuable to you when you begin to teach. Students in the past have used the reports to supplement the text--to go more deeply or more broadly into topics; to help them master the textbook material; to pursue their own interests; to "read for fun;" "to try things out;" and so on. Think of the reports as opportunities for independent study which will assist you to become a better teachers.

In order further to reduce pressure and test tensions, the submission of additional papers (beyond requirements) may be used to raise grades, provided that the minimum level of mastery has been attained on <u>each</u> quiz (C).

Reports

1. Each paper will be marked "pass" or "redo." Papers marked "redo" may be reworded and resubmitted within two weeks of the date they were returned.

2. Papers should be at least three pages in length but need be no longer.

*Robert F. Biehler, <u>Psychology Applied to Teaching</u>. New York: Houghton-Mifflin, 1971.

3. Criteria which will be used in evaluating papers are:

   a. evidence of how completely a book or article has been read, or how thoroughly an observation or an informal experiment has been carried out;
   b. estimate of the depth of thought which went into the paper or project;
   c. degree to which the paper is relevant to educational psychology;
   d. coherence and organization;
   e. originality;
   f. effort.

4. Double-spaced typewritten papers are preferred, but reasonably legible handwritten ones will be accepted.

5. In the case of readings, bibliographical references must be exact and the pages and/or chapter read clearly indicated. (Papers will be marked "redo" unless this is done.)

6. Papers may be handed in ahead of due dates.

7. No paper will be accepted later than 5:00 P.M. Friday of the week it is due.

8. Two to six papers may be submitted. (See "Grades.") Some readings or projects may involve an amount of work which would justify credit for more than one report. See the instructor if you have any question about this.

QUIZZES

1. There will be five quizzes.

2. Quizzes will be multiple choice but will not be graded on the curve. Test items will require predominantly understanding and the ability to apply understandings, rather than recall.

3. Quizzes will cover the Key Points which are listed at the beginning of each chapter, identified in the margin of the text, and covered by an exercise in the Study Guide; lectures; films; and tapes.

GRADES

The final grade will be based on performance on five quizzes and satisfactory completion of from two to six short papers.

1. Standards for the different grade levels are:

   A -- A average on quizzes plus four short papers

   OR

   B average on quizzes plus six short papers

B -- B average on quizzes plus 3 short papers
OR
C average on quizzes plus 5 short papers

C -- C average on quizzes plus 2 short papers

D -- D average on quizzes and/or fewer than 2 papers at "pass" level

F -- F average on quizzes and/or fewer than 2 papers at "pass" level

2. AN IMPORTANT RESTRICTION

A "C" on each quiz represents minimum mastery level; therefore, no grade can be raised by extra papers only unless at least a C has been earned on each quiz.

3. The letter grades on quizzes will be calculated as follows:

A: 80%-100%
B: 70%- 79%
C: 60%-69%
D: 50%-59%
F: -49%

4. Percentage grades will be used for the final average.

5. Make-up quizzes (for absentees) will be given only to those who make arrangements with the instructor before the quiz day or who can present a doctor's excuse afterward. An unexcused absence from a quiz will result in a zero on that quiz and no alternate-form quiz may be taken.

6. Arrangements for taking alternate-form quizzes will be announced.